HB13 - 1275

A Bill Concerning the Collection of Human Health Data Regarding Oil and Gas Operations in Counties

Sponsors: Rep. Ginal / Sen. Aguilar

Why this bill is important?

Health isn't a partisan issue; Democrats and Republicans all care about the well being of their fellow Coloradans. Moreover, it's an issue with far reaching consequences. If an individual gets sick, it's not only his or her quality of life that's affected but everyone within that community. When someone is ill, his or her ability to be parent, friend, son or daughter, husband or wife, and community member is affected. Similarly, illness can have dramatic economic consequences, including lost productivity and untapped potential . Therefore, the health of our constituents should be amongst our primary concerns as legislators.

This idea is especially significant as oil and gas operations continue to expand across our state, particularly in the Front Range. Simply put, policy makers do not have enough data about the health consequences caused by oil and gas development to make optimal policy decisions. Sure, we do the best we can but, if given objective actionable information, we could do better. For example, the Colorado Oil and Gas Conservation Commission ("COGCC") did not base it's recent determination on the minimum distance between a well and a home on health concerns because it determined that the presently available data was insufficient. This bill would begin rectifying that deficiency by providing policy makers and the public with an objective, peer-reviewed report regarding possible health consequences of oil and gas production.

What does the bill do?

The bill establishes a committee to issue a request for proposal for, and oversee the production of, a report that reviews existing epidemiological data related to the health consequences of oil and gas production. The oversight committee would be made up of a combination of legislators and experts appointed by the Speaker of the House (3), President of the Senate (3), the Minority Leaders (2 each), and the Governor (1). No appointee may have an interest in an oil and gas company or be a current or former member of the COGCC or the Colorado Oil & Gas Association. The oversight committee is to contract with an institution of higher education outside the state of Colorado to produce the report by November 15, 2014. The contracted entity will then select four areas in or near Larimer, Weld, Boulder, and Arapahoe counties, along with a control area outside those regions. The report will determine, to the extent practicable, whether a correlation exists between epidemiological data and the duration and type of exposure to oil and gas operations.

The bill also directs the Colorado Department of Public Health and Environment and the COGCC to utilize the information contained within the report when making adopting or amending rules, issuing or reviewing permits, conducting inspections, and setting its agenda.

HB1275_L.001

HOUSE COMMITTEE OF REFERENCE AMENDMENT

Committee on Health, Insurance & Environment.

HB13-1275 be amended as follows:

Amend printed bill, page 2, line 4, strike "**Review of**" and substitute "**Health effects attributable to**".

Page 2, line 8, strike "BOARD" and substitute "OVERSIGHT COMMITTEE CREATED IN SUBSECTION (4) OF THIS SECTION".

Page 2, line 9, strike "CONDUCT A REVIEW OF" and substitute "PREPARE A REPORT BASED ON".

Page 2, line 10, strike "WHETHER" and substitute "WHETHER, AND TO WHAT EXTENT,".

Page 2, line 11, strike "CAN".

Page 2, line 12, strike "REVIEW" and substitute "REPORT".

Page 3, line 1, strike "BOARD" and substitute "OVERSIGHT COMMITTEE".

Page 3, line 3, strike "EDUCATION." and substitute "EDUCATION OUTSIDE OF COLORADO.".

Page 3, line 4, strike "DESIGN THE REVIEW" and substitute "PREPARE THE REPORT".

Page 3, line 10, strike "REVIEW" and substitute "REPORT".

Page 3, strike lines 14 through 24 and substitute:

"(c) THE CONTRACTOR SHALL ANALYZE THE AVAILABLE DATA AND MAKE ITS REPORT TO THE BOARD AND TO THE OVERSIGHT COMMITTEE CREATED IN SUBSECTION (4) OF THIS SECTION BY NOVEMBER 15, 2014. THE BOARD SHALL PUBLISH THE REPORT ON THE BOARD'S WEB SITE AND SHALL PROVIDE COPIES OF THE REPORT TO THE COMMITTEES OF THE GENERAL ASSEMBLY WITH JURISDICTION OVER PUBLIC HEALTH, THE ENVIRONMENT, AND NATURAL RESOURCES.

(3) THE REPORT:

(a) MAY INCLUDE A SPECIFIC FINDING REGARDING".

RECOMMENDATIONS IN THE REPORT PREPARED PURSUANT TO SECTION 25-1-122.3."

SECTION 4. In Colorado Revised Statutes, 34-60-106, **amend** (2) (d) as follows:

34-60-106. Additional powers of commission - rules. (2) The commission has the authority to regulate:

(d) (I) Oil and gas operations so as to prevent and mitigate significant adverse environmental impacts on any air, water, soil, or biological resource resulting from oil and gas operations to the extent necessary to protect public health, safety, and welfare, including protection of the environment and wildlife resources, taking into consideration cost-effectiveness and technical feasibility.

(II) IN IMPLEMENTING THIS ARTICLE, INCLUDING BY ADOPTING OR AMENDING RULES, ISSUING AND REVIEWING PERMITS, CONDUCTING INSPECTIONS, AND SETTING ITS AGENDA, THE COMMISSION SHALL CONSIDER ALL RELEVANT INFORMATION AND RECOMMENDATIONS IN THE REPORT PREPARED PURSUANT TO SECTION 25-1-122.3, C.R.S.".

Renumber succeeding section accordingly.

** *** ** *** **

STATE OF COLORADO

John W. Hickenlooper, Governor
Christopher E. Urbina, MD, MPH
Executive Director and Chief Medical Officer

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Colorado Department of Public Health and Environment

Summary of Colorado Public Health Studies 2005-2012 (compiled by Kent Kuster, Oil and Gas Liaison, CDPHE)

This document contains selected information obtained from published reports to provide a quick summary of available information on public health studies conducted in Colorado from 2005-2012. This document is not meant to reflect an opinion on the studies, but simply to provide summary information. Individuals are encouraged to read the studies to obtain all of the available information on potential health impacts from oil and gas development in Colorado.

Garfield County Air Toxics Inhalation Screening level Human Health Risk Assessment, June 2005-May 2007 - CDPHE Disease Control and Environmental Epidemiology Division

Study Purpose

Determine if residents are being exposed to airborne concentrations of VOCs via inhalation that may pose unacceptable risks to human health using monitoring data from fourteen (14) fixed sites in Garfield County from June 2005 through May 2007.

Conclusion

Overall, the non-cancer hazards on either a chronic or short-term (average) basis do not exceed an acceptable value of one and the cancer risk estimates are at, or slightly above, the upper-end of EPA's acceptable risk range (1 to 100 excess cancers per 1 million individuals). Although the estimated exposures are not likely to result in significant cancer and non-cancer health effects, this screening-level analysis stresses the need for continued air monitoring and source apportionment.

Potential Uncertainties

The monitoring study only looked at a total of 43 air toxics and some important air toxics are absent which may underestimate potential risks. Most importantly, the study is based on the limited monitoring data collected on a once per month or once per quarter basis which is significantly lower than the EPA National Air Toxic Program recommended data collection frequency on a once per 6-day basis. Additionally, science is currently unable to assess exposures to multiple air toxics simultaneously. Overall, uncertainties and limitations exist in the methods used to assess exposure and toxicity. Due to these limitations, this investigation is best viewed as a "snapshot" of air quality.

Quantitative evaluation of the risks to humans from environmental contamination is frequently limited by uncertainty (lack of knowledge) regarding a number of important exposure and toxicity factors. This lack of knowledge is usually circumvented by making estimates based on whatever limited data that are available, or by making assumptions based on professional judgment when no reliable data are available. Because of these assumptions and estimates, the results of risk calculations are themselves uncertain, and it is important for risk managers and the public to keep this in mind when interpreting the results of a risk assessment.

Garfield County Air Toxics Inhalation: Screening Level Human Health Risk Assessment, 2008- CDPHE Disease Control and Environmental Epidemiology Division

Study Purpose

Based on the work completed in 2007 and 2008, the Garfield County Public Health Department in 2009 requested that the CDPHE determine if residents in Garfield County are being exposed to airborne concentrations of measured air toxics such as speciated non-methane organic compounds and carbonyls that may pose unacceptable health risks via inhalation.

Conclusion

The available information suggests a potential for public health impacts across the oil and gas development areas in Garfield County. The estimated cumulative lifetime cancer risks for the 6 air toxics with known toxicity values are at or slightly above the high-end of EPA's acceptable cancer risk range of 1 to 100 excess cancers in a million (1E-06 to 1E-04) across all monitoring sites. Each of the 20 individual air toxics assessed at any monitoring site have a chronic noncancer hazard estimate well below an acceptable value of one. However, when accounting for the cumulative chronic noncancer hazards for all of these 20 air toxics the chronic noncancer hazard estimate is just below the acceptable level of one across the two monitoring sites.

The findings of this risk assessment support the need for the following:

- Continue long-term air monitoring; increase the frequency of sampling; and include in the sampling of a complete list of contaminants associated with oil and gas development.
- Implement short-term (acute) air monitoring by collecting 1-hour air samples in order to evaluate health risks posed by intermittent peak exposures.
- Determine source apportionment including sources other than the oil and gas operations, such as stationary industrial sources and mobile traffic sources.
- Continue management of the risk posed by potential exposures to air toxics as a result of increase in oil and gas development activities (e.g., additional monitoring, sample analysis, and action as appropriate).

Potential Uncertainties

Overall, it is important to note that the cancer risks are likely to be underestimated in this assessment because cancer toxicity values are only available for a small number of air toxics. Also, health risk assessments provide predictions of hypothetical health risks, which are intended as screening tools for risk managers and cannot be used to make realistic predictions of

biological effects. Finally, this investigation is best viewed as a "snapshot" of air quality due to the uncertainties and limitations in the methods used to assess exposure and toxicity.

Community Health Risk Analysis of Oil and Gas Industry Impacts in Garfield County, 2008 – Teresa Coons and Russell Walker

Study Purpose

In 2008, St. Mary's Saccomanno Research Institute and Mesa State College, with the help of communities in Garfield County, released a study of health risks related to oil and gas industry activities. The study purpose was to conduct a comprehensive study of health and environmental risks to residents of Garfield County. The study conducted over a period of three years, had two major components: a risk analysis based on environmental exposure data and modeling and a comprehensive health study to provide a baseline assessment of the health of Garfield County residents.

Conclusions

Risk Assessment - Risk modeling indicates that there are industry factors that could present a public health risk. Benzene emissions during uncontrolled flow back present the greatest cancer threat. The results of the risk assessment for air also indicate that reference concentrations for non-cancer effects may be exceeded for some situations. The use of best management practices can reduce that risk.

Health Study – At the present time based on our data sources there is not a health crisis in Garfield County, but there are some health trends that should be monitored. We cannot say conclusively that any of these health trends are directly related to the presence of natural gas industry activities or to other factors. Based on the data available to us from state, hospital association, and healthcare provider sources, the health of people in Garfield County is not different from the health of residents in other Western slope counties.

Potential Uncertainties

Lack of baseline health data with which to determine trends or changes, relatively new presence of the industry in the region and both risk and causation involve probability statements; may not be able to say with certainly that a particular health condition is caused by an exposure to potentially toxic materials. There are numerous gaps and uncertainties in our understanding of pollution from natural gas operations in Garfield County. The motivation for the recommendations is to reduce these uncertainties and fill data gaps. Better information is needed in order to make complete and accurate evaluation to threats to human health.

Garfield County Health Consultation prepared by CDPHE in Cooperation with ATSDR 2008 (Principal Investigator Raj Goyal)

Study Purpose

The purpose of this document is to identify any potential public health implications resulting from inhalation of volatile organic compounds in Garfield County and recommend actions to reduce exposure if necessary.

Conclusions

Data reviewed in this health consultation indicate that the ambient air quality in Garfield County constitutes an indeterminate public health hazard, for all current exposures, based on the estimated theoretical cancer risks as well as noncancer hazards and the uncertainties associated with the available data.

Potential Uncertainties

Three major sources of uncertainty were factored into this conclusion: (1) the ability to realistically and continuously monitor ambient air at all places of interest and in the breathing zone of the exposed population; (2) the reality that some of the monitoring locations may detect emissions from sources other than the oil and gas development activities; and (3) the inability to adequately capture intermittent peak exposures, as indicated by grab sampling events. Overall, given the uncertainty in the limited data and uncertainty in the exposure patterns of the community, more air monitoring is urged.

Garfield County Health Consultation prepared by CDPHE in Cooperation with ATSDR 2010 (Principal Investigator Raj Goyal)

Study Purpose

Garfield County Public Health Department requested evaluation of the 2008 air quality monitoring data; identify any potential health implications resulting from inhalation of ambient air in Garfield County and recommend actions to reduce the exposure, if necessary.

Conclusions

It cannot currently be determined if breathing ambient air in the monitored areas of Garfield County could harm people's health.

Potential Uncertainties

The cancer risks and noncancer hazards for 65 out of 86 contaminants cannot be quantitatively estimated due to limited toxicological information evaluation based on the available toxicity information. It should be noted that the current state of the science is unable to assess exposures to complex mixtures of air toxics, especially, synergistic and antagonistic interactions at low levels. Not all compounds that may have been associated with natural gas development were measured.

Analysis of Data Obtained from the Garfield County Air Toxics Study - Summer 2008 - CDPHE Air Pollution Control Division

Study Purpose

The study was intended to be used as a screening tool with the purpose of determining whether or not further, more in depth, air pollution research should be performed in the area. The ultimate goal of the study was to further develop the basis for decisions on how Garfield County can best manage the impacts of air pollution caused by energy development.

Conclusions

This study was performed at eight different well pad sites throughout Garfield County. Four of the sites were undergoing drilling activities and the other four were undergoing completion activities. The data collected at each of these sites indicates that the completion activities have

the potential for higher emissions of organic compounds into the surrounding area compared to drilling operations. This study provides support for the push to convert all well completions over to green completion technology in Colorado and elsewhere. The addition of this technology could help reduce future emissions. The addition of sampling around well pads that are undergoing activities other than drilling and completion could also be useful.

Potential Uncertainties

The scope of this air monitoring effort was not intended to serve as an all encompassing large scale assessment of all possible processes within the energy development industry or address every potential variable (seasonality, temporal, operational, etc.). Rather, it was designed to compare and estimate the potential emissions from these two processes taking place on a well pad.

Human Health Risk Assessment of Air Emissions from Development of Unconventional Natural Gas Resources – Colorado School of Public Health 2012

Study Purpose

To estimate health risks for exposures to air emissions from an unconventional natural gas development project in Garfield County, Colorado with the goal of supporting risk prevention recommendations in a health impact assessment.

Conclusions

These preliminary results indicate that health effects resulting from air emissions during development of unconventional natural gas resources are mostly likely to occur in residents living nearest the well pads and warrant further study. Risk prevention efforts should be directed towards reducing air emission exposures for persons living and working near wells during well completions.

Potential Uncertainties

As with all risk assessments, scientific limitations may lead to over-or underestimation of the actual risks. The risk assessment also was limited by the spatial and temporal scope of the available monitoring data. The ½ mile cut point for defining the two different exposed populations in the exposure scenarios was based on complaint reports from residents living within ½ mile of existing unconventional natural gas development, which were the only available data. The actual distance which residents may experience greater exposures from air emissions may be less than or greater than a ½ mile, depending upon dispersion and local topography and meteorology. These limitations and uncertainties in our risk assessment highlight the preliminary nature of the results.

Hydrocarbon Emissions Characterization in the Colorado Front Range - A Pilot Study by NOAA Gabrielle Petron 2012

Study Purpose

A pilot study focused on describing and interpreting the measured variability in methane CH_4 and C 3-5 alkanes observed in the Colorado Front Range. The researcher used data from air samples collected at the NOAA tall tower located in Weld County as well as continuous CH_4

observations and discrete targeted samples from an intensive mobile sampling campaign in the Colorado Front Range. These atmospheric measurements are then used together with other emissions data sets to provide an independent view of methane and non-methane hydrocarbon emissions inventory results.

Conclusions

The analysis of the tower (300-m tall tower in SW corner of Weld County) reveals a strong alkane and benzene signature in the air masses coming from northeastern Colorado (natural gas is composed primarily of "alkanes" such as methane, ethane and propane, with methane comprising up to 90% of the gas). Using a Mobile Lab platform sampling was conducted downwind from different methane sources and both the tower and mobile lab revealed a common source for the alkanes. The alkanes did not correlate with combustion tracers, so the authors hypothesize that the observed alkanes were emitted by the same source located over the Denver-Julesburg Basin. The measured alkanes indicate that Weld County methane emissions from oil and gas production and processing in Colorado has most likely underestimated the methane attributed to natural gas by a factor of two.

Potential Uncertainties

More measurements are needed to further evaluate the various potential sources associated with oil and gas operations (For example, glycol dehydrators and condensate tank flash emissions). More targeted multi-species well-calibrated atmospheric measurements are needed to evaluate current future bottom-up inventory emissions calculations for fossil fuel sector and to reduce uncertainties on absolute flux estimates for climate and air quality relevant trace gases.

Air Emissions Case Study Related to Oil and Gas Development in Erie, Colorado prepared by CDPHE 2012

Study Purpose

To measure air emissions that may be associated with the well completion activities in Eire Colorado. In July of 2012, a natural gas production company began work on the drilling and completion of a number of wells on one well pad on the west side of Erie. This location is near a residential area and two elementary schools: Red Hawk Elementary to the south-southwest and Erie Elementary to the east. In response to the community's concerns, the CDPHE's Air Pollution Control Division (APCD) conducted monitoring in two locations after work on the wells began, primarily during completion activities.

Conclusions

This study provides a snapshot in time for this natural gas completion activity at this well pad only. The completion activities at this well pad were done using reduced emission or "green" completion techniques, which are a "best management" requirement designed to minimize air emissions from well completions. The air sampling results are consistent with what would be expected. No significant concentrations were recorded that could be directly attributed to well completion operations at this well pad. Concentrations of likely oil and gas related compounds such as ethane and propane were found to be slightly higher at the Erie sites than in downtown Denver, but much lower than in Platteville where greater oil and gas activity is taking place. Similarly, methane levels at the Erie sites were consistent with other locations, and were higher than in Denver, and lower than in Platteville. Toluene and benzene levels were higher at one Erie monitor than the other, likely due to emissions from truck traffic.

The monitored concentrations of benzene, one of the major risk driving chemicals, are well within acceptable limits to protect public health, as determined by the U.S. Environmental Protection Agency. The concentrations of various compounds are comparatively low and are not likely to raise significant health issues of concern.

Potential Uncertainties

This study includes a limited data set and may or may not be representative of conditions and potential emissions at other locations. It should be noted the current state of the science is unable to estimate the potential risks due to exposure from multiple chemicals at the same time, which may be higher.

An Exploratory Study of Air Quality near Natural Gas Operations – 2012 Theo Colborn, Kim Schultz, Lucille Herrick, and Carol Kwiatkowski

Study Purpose

The exploratory study was designed to assess air quality in a rural western Colorado area where residences and gas wells co-exist. Sampling was conducted before, during, and after drilling and hydraulic fracturing of a new natural gas well pad.

Conclusions

The data in this study show that air sampling near natural gas operations reveals numerous chemicals in the air, many associated with natural gas operations. Weekly air sampling for 1 year revealed that the number of non-methane hydrocarbons (NMHCs) and their concentrations were highest during the initial drilling phase and did not increase during hydraulic fracturing in this closed-loop system. Although concentrations of polycyclic aromatic hydrocarbons (PAHs) found in this study appear low, they may have clinical significance.

In order to determine how to reduce human exposure for both those who work on the well pads and those living nearby, systematic air quality monitoring of natural gas operations must become a regular part of permitting requirements. NMHCs need far more attention not only because of their potential immediate and long term chronic health effects, but also for their secondary indirect health and environmental impacts as precursors to ozone.

Potential Uncertainties

The concentrations at which these chemicals were detected in the air are far less than U.S. government safety standards such as NIOSH Recommended Exposure Limits and OSHA Permissible Exposure Limits (NIOSH 1992; OSHA 1993). However, government standards are typically based on the exposure of a grown man encountering relatively high concentrations of a chemical over a brief time period, for example, during occupational exposure. Consequently, such standards may not apply to exposure scenarios faced by individuals (including pregnant women, children, and the elderly) experiencing chronic, sporadic, low-level exposure, 24 hours a day 7 days a week in natural gas neighborhoods. Safety standards also do not account for the kinds of effects found from low-level exposure to endocrine disrupting chemicals (Vandenberg *et al.* 2012), which can be particularly harmful during prenatal development and childhood. In addition, our study would have benefited from more baseline samples. Unfortunately, there was no way to know exactly when drilling would start and we were only alerted when the drill rig was being installed. If we were to sample again, we would rotate sampling every six days and

at varied times around the clock. Most importantly, we would record meteorological data on-site throughout each sampling period. In rural mountainous areas, where local topography varies greatly, public sources of weather data may not be applicable for air quality research.

Peggy Tibbetts
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I live in Silt, Colorado, which is in western Garfield County where we have over 10,000 active oil and gas wells. In 2004 there were only 1,669 active wells. Since then I have watched the gradual decline in our air quality, water quality, environment, property values, economy, education – you name it. I call this the Third World. Oil and gas development has not helped our economy. Our local school district is broke and the kids only go to school four days a week.

My family drinks bottled water only. A well exploded along West Divide Creek in 2004 and toxins have been seeping into the creek since then. West Divide Creek flows into the Colorado River above our town's water intake. We don't believe our water is safe to drink no matter what the CDPHE says.

We have brown cloud and blue ozone air pollution. Right now there is an underground hydrocarbon plume/leak that was discovered north of Parachute, a nearby town, which is contaminating groundwater.

I know people who are sick from toxins related to drilling. I know people who have died from exposure to toxins from well explosions. I worry about my family members' health, my own health. My daughter and two grandchildren also live in Silt. My granddaughter and my grandson get sick more often now than they did two years ago. Since last September (2012), I have had numerous sinus infections, viruses, and recently strep throat. I have never been sick so much in my life.

My husband, Tod travels often for his business. He is the healthiest member of our family because he is able to get out of the "brown cloud" on a regular basis. Here is his statement:

"My position as the computer systems manager for a nationwide wholesale lumber distributor requires that I travel regularly to offices located across the U.S. I spend most of my travel time in the company's New York office, which is just outside of Manhattan. I also spend a few weeks in Chicago. What brought my attention to our poor air quality was coming from these dense urban environments back home to Silt and actually smelling the bad air – not in New York City, not in downtown Chicago, but in the Colorado River valley and here in Silt. Over the last two years, more times than not, as I head east from the Garfield County Airport exit on the freeway, the air smells, my eyes sting, and I start sneezing. For me this has been not only startling, but a rude awaking to the realization that the air we breathe here in western Garfield County is worse that the air in New York City, Chicago, and even on the tarmac at DIA. Only when I'm in Silt do I have "allergy" symptoms – not in these other locations where I work. And I travel back and forth enough to notice the difference."

We know in our hearts we should move our family away from the gasfields. But we worry about our property values. Who would want to live here besides workers in the industry? They don't buy houses. They rent. Silt used to be a growing community full of people who knew each other and cared for one another. However in the past four years the town has been transformed into a gas town. Families have moved away from the unhealthy air and water. Family homes have become rental units, and rents are high. Many, many homes remain vacant.

I want to know why federal, state and local governments ignore, suppress, and discredit legitimate, peer-reviewed air quality and water quality studies that prove air pollution and groundwater contamination from drilling activity. Real science is being tossed aside putting public health at risk. This is a travesty.

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April 11, 2013

Representative Joann Ginal
200 E. Colfax, Room 271
Denver, CO 80203

Re: HB13-1275 - SUPPORT

Dear Representative Ginal,

On behalf of the City of Fort Collins, I would like to express support for your bill HB13-1275. This bill is important to our residents and to all Coloradans because it attempts to develop a study of the human health-based impacts of oil and gas activity.

Like many Front Range communities, Fort Collins has been addressing residents' concerns with proximity to oil and gas wells and activity. We have had nearly a year of community dialogue on subjects related to oil and gas extraction and its associated impacts including hydraulic fracturing. The community conversations have centered on residents' concerns with their own health, specifically the health of their children.

What has been evident throughout this time has been the lack of any reliable, verifiable human health-based information on the impacts of the various methods for extracting gas and oil. Your bill will address these impacts and will do so quickly. The fact that there could be some initial reporting within a year would help inform local government rule-making, the establishment of better setbacks, and an improvement of the Colorado Oil and Gas Conservation Commission rules.

As a community, Fort Collins residents value factual and transparent information that informs decision making. Your bill, HB13-1275 will provide Front Range residents with facts to then begin to decide on their own how comfortable they are with oil and gas activity nearby.

Your bill fills a void of information in a critical area for local policymakers and for that reason the City of Fort Collins supports it and calls on the Colorado General Assembly to pass HB13-1275.

Sincerely,

Wendy Williams
Assistant City Manager
City of Fort Collins
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Benzene found in test wells 10 feet from Parachute Creek

tate still says there is no sign the creek is contaminated

PRIL, 2 2013

OHN COLSON

OST INDEPENDENT STAFF

ILENWOOD SPRINGS, COLORADO CO

'ARACHUTE CREEK, Colorado — Benzene, a cancer-causing toxin, has been found in a newly completed groundwater nonitoring well just 10 feet from Parachute Creek, where investigators have been looking for nearly four weeks into a uspected leak in natural-gas pipelines, tanks or other facilities in the area.

ccording to an update from Todd Hartman, spokesman for the Colorado Oil and Gas Conservation Commission (COGCC), ampling results from the new well showed benzene in the water at levels between 1,900 parts per billion and 4,100 parts er billion.

he maximum safe level of benzene for human exposure is 5 parts per billion, according to the U.S. Center for Disease

ontrol. Benzene, a liquid hydrocarbon long associated with natural gas drilling activities, is a known carcinogen linked to eukemia and birth defects.

he new monitoring well is about 325 feet to the southeast of a set of valves and a "recovery trench" dug by Williams idstream, the energy company conducting the cleanup, according to Hartman's statement.

Villiams, which owns a natural-gas processing plant near the plume site, dug the new monitoring well and others after enzene was found in an earlier set of monitoring wells, which were closer to the plume and 30 feet from Parachute Creek. enzene was reported from those wells at a range of 5,800 parts per billion and 18,000 part per billion.

Villiams, and state officials with the COGCC, have been at the scene since the plume was discovered on March 8, while Villiams was conducting soil analysis in preparation for expansion of the processing plant.

he site is roughly four miles up Parachute Creek from the town of Parachute, which is more than 40 miles west of lenwood Springs in Garfield County. The creek flows into the Colorado River near Parachute.

ccording to Hartman, "Repeated sampling over 18 days has shown no evidence of benzene contaminating Parachute Creek. OGCC continues to believe the hydraulic gradient makes it difficult for groundwater to move into the stream as current vater level data indicates the creek serves to recharge groundwater as opposed to groundwater feeding the creek."

tate officials now believe the plume of hydrocarbons found along Parachute Creek may be older than first believed.

ccording to an April 1 statement by Hartman, "The situation suggests to COGCC investigators the possibility there may ave been historic releases in the vicinity of the valve set and the recovery trench that occurred over a period of time."

lartman wrote that the company still had not located an "active source" for what is believed to be a leak or leaks in the ipelines, tanks or the natural-gas processing plant.

oth Williams and WPX Energy, a drilling company, were cited by the Colorado Oil and Gas Conservation Commission with esponsibility for cleaning up the plume.

he plume was found in a 40-foot right of way held by Williams across land owned by WPX Energy.

he two companies are spinoffs from Williams Production RMT, an energy company that split apart in 2012, creating the tw ew firms.

colson@postindependent.com

Colorado School of Public Health Study says Frack Wells can Cause Acute and Chronic Health Problems

by Duane Nichols on May 16, 2012

"Our data show that it is important to include air pollution in the national dialogue on natural gas development that has focused largely on water exposures to hydraulic fracturing," said Lisa McKenzie, Ph.D., MPH, lead author of a new report and research associate at the Colorado School of Public Health.

The report, based on three years of monitoring, found a number of potentially toxic petroleum hydrocarbons in the air near the wells including benzene, ethylbenzene, toluene and xylene. Benzene is a well known carcinogen.

The report, which looked at those living within a half-mile from the wells, comes in response to the rapid expansion of natural gas development in rural Garfield County, in western Colorado. McKenzie analyzed ambient air sample data collected from monitoring stations by the Garfield County Department of Public Health and Olsson Associates Inc. She used standard EPA methodology to estimate non-cancer health impacts and excess lifetime cancer risks for hydrocarbon exposure.

The report concludes that health risks are greater for people living closest to wells and urges a reduction in those air emissions. Future studies are warranted and should include collection of area, residential and personal exposure data where wells are operating. Additional studies should also examine the toxicity of other hydrocarbons associated with natural gas development.

This study is entitled "Human Health Risk Assessment of Air Emissions from Development of Unconventional Natural Gas Resources." It has been accepted for publication in *Science of the Total Environment.*

See also the slide presentation by John Adgate, Professor and Chair of the Department of Environmental and Occupational Health at the University of Colorado. It is entitled "Air Pollution Exposure and Risk Near Unconventional Natural Gas Drill Sites: Example from Garfield County, Colorado."

Forest Service studying future of Pawnee Grasslands oil and gas drilling, fracking

Written by Bobby Magill
Apr. 02

coloradoan.com

Want to know more?
Visit the Pawnee National Grasslands Oil and Gas Analysis website at http://1.usa.gov/10xlRNy .

Should oil and gas leasing, drilling and fracking continue on the Pawnee National Grasslands? Should more restrictions be placed on drillers there?

Those are questions the U.S. Forest Service is asking the public before the agency begins an analysis of the environmental impact of energy development on the grasslands.

The Pawnee National Grasslands, public land that is home to the scenic Pawnee Buttes, are at the center of the Niobrara shale oil and gas drilling rush. Even the Pawnee Buttes themselves have been proposed for drilling from drilling sites on nearby private land.

Oil and gas leasing is being allowed on the grasslands under a management plan from 1997 and based on oil and gas drilling projections from 1995 -- long before current fracking technology made northern Weld County a gold mine for the oil and gas industry.

"Much has changed in both technology and interest since then, leading the U.S. Forest Service to do this leasing analysis," an agency statement said Wednesday.

The analysis will put on record new information about the oil and gas development potential on the grasslands that weren't anticipated 18 years ago. The study will determine if new restrictions need to be placed on oil and gas development there.

The Forest Service began a 45-day public comment period on April 1, and a draft environmental review of the project is expected in August, with a final version expected in August 2014.

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